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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,408	03/24/2004	Johannes Martinus Duisters	081468-0308928	3868
909	7590	03/08/2006	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP P.O. BOX 10500 MCLEAN, VA 22102				FULLER, RODNEY EVAN
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/807,408	DUISTERS ET AL.	
	Examiner	Art Unit	
	Rodney E. Fuller	2851	

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.  
 If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.  
 Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 15 December 2005.  
 2a) This action is **FINAL**.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-12 and 14-32 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-12 and 14-32 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 24 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**RODNEY FULLER**  
**PRIMARY EXAMINER**


**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Remarks***

1. In applicant's Amendment, dated December 15, 2005, the applicant canceled claim 13 and amended claims 1, 14, 27, 29 and 31. Claims 1-12 and 14-32 are pending.
2. Regarding the 35 U.S.C. 102(b) rejection of claim 1 as being anticipated by Suzuki, et al. (US 2002/0012109), the applicant incorporated the limitations of claims 13 into independent claim 1. The same limitations were also incorporated into independent claims 27 and 31. The applicant notes that the examiner relied on Hunter '598 as teaching the limitations from claim 13. The applicant makes the argument that Hunter '598 is not a proper prior art rejection as its filing date of May 10, 2005 is over 13 months after the filing date of the present applicant. The examiner acknowledges that the "filing date" of Hunter (US 2005/0199598) is May 10, 2005. However, Hunter (US 2005/0199598) is a continuation of application No. 10/298,838 (filed: 11/18/2002), which is a continuation of application 09/572,925 (filed: 5/16/2000). Thus, Hunter (US 2005/0199598) has an effective filing date of May 16, 2000 and is considered a proper prior art reference.
3. The applicant makes the argument that "even if Hunter '598 would qualify as a proper reference, it still fails to teach" the claimed limitations of claim 1. The examiner notes that Hunter '598 was used in the last Office Action as a secondary reference to teach the limitations of claim 13, which has now been incorporated into independent claims 1, 27 and 31. Thus, the examiner maintains that the structure set forth in

independent claims 1, 27 and 31 would be obvious in light of Suzuki, et al. (US 2002/0012109) in view of Hunter (US 2005/0199598).

4. Regarding claim 25, the applicant makes the argument that Suzuki "clearly shows that there is no radiation source 1 within chamber 216 and that the radiation source 1 would have to be located external to chamber 216." Thus, it appears that applicant is arguing that claim 25 sets forth that the radiation source is internal to the chamber.

Claim 25 states in part:

"a first housing including a first chamber inside said first housing, a radiation source, a first optically transmissive window, and at least one moveable lens in said first chamber;"

The examiner maintains that the claimed limitations sets forth that only the "moveable lens" is in the first chamber. Furthermore, if the claim language is interpreted such that the radiation source or the transmissive window located in the first chamber, then claim would not be supported by the specification or drawings. As shown in Figure 2, the source 13 is outside the chamber 16, and the window 17 is attached to an opening of the housing 15 of the chamber 16.

Regarding claim 29, the applicant makes the argument that claim 29 recited similar patentable features to those argued with respect to claim 25.

Thus, the examiner maintains that Suzuki discloses all the structure set forth in claims 25 and 29.

5. Regarding the Claim Objection of claim 24 as lacking antecedent basis, the applicant did not address the objection. Thus, the examiner maintains the objection set forth in the Office Action mailed October 31, 2005.

6. In the Office Action, mailed October 31, 2005, the examiner indicated that the drawings filed on March 24 2004 were accepted. After re-review, the examiner objections to the drawings as being informal. (See below)

***Drawings***

7. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings are informal. Specifically, the reference labels in all of the figures appear to be hand drawn. Likewise, the drawings in Figures 1-3 and 5-9 appear to be hand drawn. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

***Claim Objections***

8. Claim 24 recites the limitation "said magnet part and said conductor part." There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 25, 26, 29 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki, et al. (US 2002/0012109).

Regarding claim 25, Suzuki discloses “a first housing (Fig. 1, ref.# 100) including a first chamber (Fig. 8, ref.# 216) inside said first housing, a radiation source (Fig. 1, ref.# 1), a first optically transmissive window (Fig. 8, ref.# 235), and at least one moveable lens (Fig. 8, ref.# 236-240) in said first chamber; at least one gas exchange opening in communication with said first chamber (paragraph 0103, lines 8-21; paragraph 0228, lines 1-4); and at least one additional optical element positioned outside said first housing (Fig. 7, ref.# 213), wherein an optical path (Fig. 7, see dotted line through center of optical system) is defined by said radiation source of radiation, said at least one moveable lens, said first optically transmissive window, and said at least one additional optical element.”

Regarding claim 26, Suzuki discloses “providing a beam of radiation for illuminating a patterning device (Fig. 7, ref.# 214.” (paragraph 0003, lines 1-4)

Regarding claim 29, Suzuki discloses “ a first housing (Fig. 1, ref.# 100) including a first chamber (Fig. 8, ref.# 216) inside said first housing, a radiation source (Fig. 1,

ref.# 1), a first optically transmissive window (Fig. 8, ref.# 235), and at least one moveable lens (Fig. 8, ref.# 236-240) in said first chamber, at least one gas exchange opening in communication with said first chamber (paragraph 0103, lines 8-21; paragraph 0228, lines 1-4), and at least one additional optical element positioned outside said first housing (Fig. 7, ref.# 213) , wherein an optical path (Fig. 7, see dotted line through center of optical system) is defined by said radiation source of radiation, said at least one moveable lens, said first optically transmissive window, and said at least one additional optical element; a support structure (Fig. 7, ref.# 215) configured to support a patterning device (Fig. 7, ref.# 214) that imparts a desired pattern onto said beam of radiation; a substrate holder (Fig. 7, ref.# 221) configured to hold a substrate (Fig. 7, ref.# 220); and a projection system (Fig. 7, ref.# 216) configured to project said patterned beam onto a target portion of said substrate."

Regarding claim 30, Suzuki discloses "wherein, with respect to said optical path, said optical system (Fig. 7, ref.# 216) and said at least one additional optical element (Fig. 7, ref.# 213) are positioned on a same side of said support structure (Fig. 7, ref.# 221)."

#### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1-12, 21, 27, 28, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki, et al. (US 2002/0012109) in view of Hunter, et al. (US 2005/0199598).

The applicant amended independent claims 1, 27 and 31 to include the limitations of canceled claim 13.

Suzuki discloses all the structure set forth in the claims (See Office Action mailed October 31, 20050, except (canceled claim 13 limitation) “wherein a gas bearing is provided for the moveable lens.” However, the use of air bearings are well known in the art at the time of the invention as is evident from the teaching of Hunter (See paragraph 0033, 0120). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize air bearings with the movable lens of Suzuki in order to “overcome limitations in accuracy and reliability” as noted by Hunter (See paragraph 0120)

13. Claims 14, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki, et al. (US 2002/0012109) in view of Taniguchi, et al. (US 2002/0008863).

Suzuki discloses that the moving lens are moved by “driving elements 242-246” that may be “formed of a piezo-electric device.” (paragraph 0148) Thus, Suzuki does not explicitly disclose that the moveable lens are moved by (claim 14) “a piston which is moveable in a cylinder with pressurizable gas” or (claims 22 and 23) “wherein said lens actuator comprises a linear motor with a magnet part and a conductor part, wherein said moveable lens is connected to one of said conductor part and said magnet part.”

However, Taniguchi teaches that a variety of driving mechanisms may be utilized to move a lens in an optical system. Specifically, Taniguchi teaches that "a motor, air piston, piezoelectric element, etc.) may be utilized to move a lens. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize either a piston (claim 14) or an electric linear motor (claims 22 and 23) in place of the piezoelectric device of Suzuki. The ordinary artisan would have been motivated to modify Suzuki to take advantage of the inherent benefits (costs, size, speed, accuracy, etc.) of each type of equivalent moving mechanism for a lens.

14. Claims 15-20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki, et al. (US 2002/0012109) in view of Murayama, et al. (US 6,341,006). Suzuki discloses all the structure set forth in the claims, except Suzuki discloses a single large chamber (ref.# 100) with another chamber (ref.# 216) with windows (ref.# 235, 241). The optical elements from ref.# 4 to ref.# 16 are thus in a single environmental chamber of ref.# 100. Thus, Suzuki does not disclose (claim 15) "at least one second housing, with a second chamber inside said second housing and with a third and fourth optically transmissive window and accommodating at least one of said at least one additional optical element in said second chamber," (claim 16) "wherein said at least one second housing comprises at least one gas exchange opening in communication with said second chamber," (claim 17) "wherein said at least one gas exchange opening is sealable," (claim 18) a "second gas exchange means connected to said gas exchange opening," (claim 19) "wherein said first housing is releasably

connected to at least one second housing," and (claim 20) "wherein one of said optically transmissive windows of said first housing and one of said optically transmissive windows of said at least one second housing form a common optically transmissive window." However, Murayama teaches that the use of separate gas filled chambers with separating windows for the illumination optics of a lithography system was well known in the art at the time of the invention. (See Murayama, Fig. 1, ref.# 18a-18d; column 3, lines 10-15) Thus, it would have obvious to one of ordinary skill in the art at the time the invention was made to modify Suzuki by including gas controlled multiple chambers with transmissive windows. The ordinary artisan would have been motivated to modify Suzuki as discussed above in order to reduce the time to fill the areas around the optical elements with gas as discussed by Murayama (see column 3, lines 1-9)

### ***Conclusion***

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney E. Fuller whose telephone number is 571-272-2118. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rodney E Fuller  
Primary Examiner  
Art Unit 2851

March 2, 2006

